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ABSTRACT

The semantic module of the language development curriculum portion of the Early Childhood-Special Education Teacher Preparation Program at the University of Virginia includes the following: (1) outlines of the ontogeny of semantic development of children from 3 to 92 months of age, and of the basic concepts of young children viewed as semantic development outcomes; (2) discussions of the relevancy of these outcomes and of the measurement of concept development in young children; (3) an outline of the learner characteristics and situational and content variables relating to concept development; (4) a discussion of three instructional strategies (the directive, developmental, and multi-sensory learning systems approaches) useful with young children; (5) a list of the cognitive and skill competencies needed by teachers to develop concepts in young children; and (6) the module mechanics, including selected readings, scheduling, and appropriate films. (ED)

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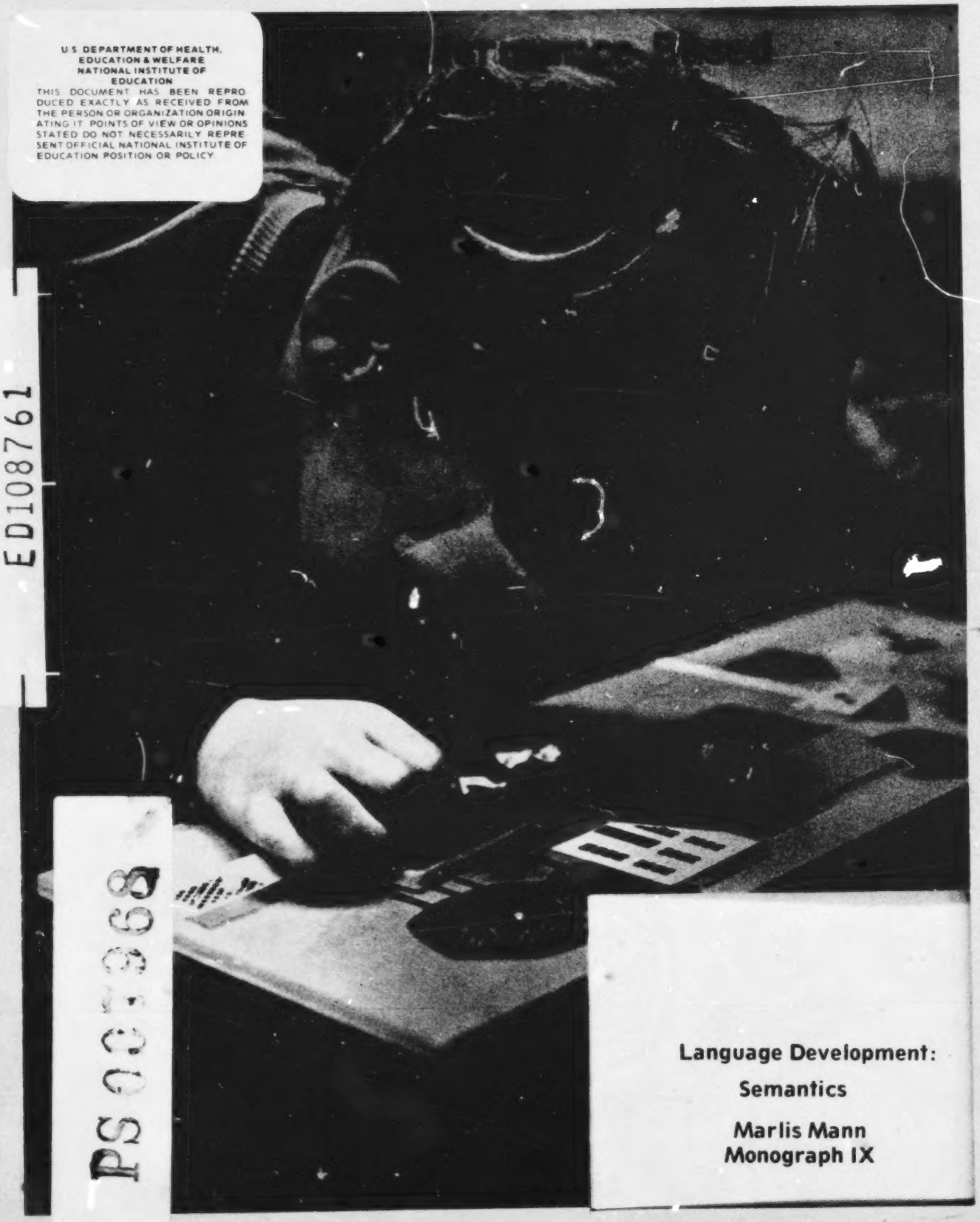

PS 00368

Language Development: Semantics

Marlis Mann

Monograph IX

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Step I: Goals of Semantic Development for Young Children

Outogeny
Outcomes
Relevancy of Outcomes
Measuring Concept Development

Semantics Outogeny

Age in months	Stage	Appropriate Equipment	Alternative
[redacted]	Sustains cooing 15-20 seconds.		
6	Babbling resembling one syllable utterances like ma, mu, da, or ci.		
8	More continuous repetitions become frequent; intonation patterns become distinct, utterances can signal emphasis and emotions.		
10	Vocalizations mixed with sound.		
12	Babbling; practices at random many phonetic elements of IPA; it is self-imitated. Mamm or dad emerging. Has 2 words besides mama and dada.		
15	May name a familiar object - like ball or cookies.		
18	20 words including some adjectives and adverbs. Says hello, bye-bye, than you. Names pictures - referent category is broad and inclusive.		
21	Specifies need for food and drink, water, etc.		Don't respond until child makes verbalization
22	Adds 100 new words to vocabulary.		
24-30	Vocabulary of 300-45-words. Naming of things, persons, actions, and situations greatly predominate. Adverbs, adjectives, prepositions are in the minority. Child refers to self by name.		Multi-sensory concepts centers.

Age in months	Stage	Appropriate Equipment	Alternative
24-30 cont'd.	Pronouns "mine", "me", "you", & "I" coming into use in approximately that order. Pleasure in matching words with objects.		
36	Egocentric speech prevails. Dramatizes, combining words and actions for his own pleasure. Asks questions about persons, things, processes. Names two colors. Tells sex; full name. Verbalizes toilet needs. Vocabulary. Mean number of words: 896.		
36-48	Knows street where he lives. Knows age and sex. Knows last name. Meaningful words dominate speech. Words become instruments for designating percepts, concepts, ideas and relationships. Counts three objects correctly. Content is largely egocentric. Vocabulary of nearly 1000 words. Average is 900. Suit action to word and word to action in his monologue. Prepositions such as "on", "behind", "under", "in front of". Refers to self as "I". Non-present situations dealt with verbally. Generalizations common in talking. Greater growth of vocabulary within shorter period of time than any other period of semantic development.		
48	Counts 4 pennies correctly - number concepts barely goes beyond "one", "two", and "many". Can		

Age in months	Stage	Appropriate Equipment	Alternative
48 cont'd.	count beyond 4 by rote memory. Vocabulary of 1500 words. Ability to generalize and abstract are present. Verbal syncretism still dominates understanding but he is beginning to show interest in isolated word meaning. In general still deals with whole sentences without analysis of words. Uses many how and why questions in response to speech of others. Perception still is realistic, first person. Ideation, however, becoming less concrete; alludes to objects, persons, events not in immediate environment. Engages in collective monologues with other children but there is little cooperative thinking. Tells tales; talks much; threatens playmates. Vocabulary. Mean number of words: 1540. Uses slang.		
54	Egocentric speech declining: uses more adaptive language (social communication.) Verbal syncretism still dominates understanding. Employs extension of meaning in interpreting speech of others. Discrimination: Perceives differences in concrete events. Recall: Links past and present events. Vocabulary: Mean number of words: 1870. Vocabulary now reflects his linguistic cul-		

Age in months	Stage	Appropriate Equipment	Alternative
54 cont'd.	ture; uses many colloquial expressions. Defines simple words. Tries to use new words, not always correctly.		
60	Names 4 colors. Counts 10 pennies correctly. Has vocabulary of 7072 words. Aggressiveness may appear in words as well as actions; he calls names and brags. Can tell his age. Devines in terms of use e.g., "a horse is to ride". Distinguishes left and right in self, but not in others. Engages in responsive discourse. Gives and receives information. Change from egocentric speech to rational reciprocity. Develops percepts of number, speed, time, space. Shows inner logic in recounting plots of children's plays (television and theatre). Names and describes objects in composite pictures. Names penny, nickel, dime. Employs some imaginative thinking, but is mainly realistic. Abstraction still is meager. Categorizes concrete events on basis of likeness and difference. Vocabulary: Mean number of words: 2072. Percentage increase in vocabulary of use slight. Comprehension of vocabulary increasing markedly. Defines simple words.		
66	Language is becoming symbolic. Significant gains in relating		

Age in months	Stage	Appropriate Equipment	Alternative
66 cont'd.	present and past events. Conversation is socialized in sense that listener is associated with speaker; little true collaboration of thought. Child still speaks chiefly of himself, his actions, and thoughts. Primitive argument develops: clash of unmotivated assertions. Advances in categorization and synthesis of percepts. Vocabulary: Mean number of words: 2289.		
79	Comprehension of morphemic sequences develops sharply. Anticipates closure in speech of others. Perception and inner language make great gains; asks for explanations, motives of action, etc. Understands roughly difference between time intervals. Understands seasons of year. Generally distinguishes left from right in himself. Attempts to verbalize casual relationship. Counts three objects without error. Vocabulary: Comprehends meaning of 4000 words; uses (mean number of words): 2562 (7 years).		
92	Egocentric speech has gone underground, and inner language shows marked development. True communication develops. Ideas shared; speech reflects understanding of casual or logical relations.		

Age in months	Stage	Appropriate Equipment	Alternative
92 cont'd.	Vocabulary. Comprehension of words races far ahead of vocabulary of use. Understands 6000 - 8000 words. Vocabulary of use: 2562 to 2818 (7-8 years).		

SEMANTIC OUTCOMES

Following are basic concepts that are common to most young children.

Classification concepts.

Properties of the Concept

1. Sight
   a. Size - big, little, long, short, tall, wide, tiny, narrow
   b. Shape - 2 & 3 dimension, round, square, cylinder, cube, sphere
   c. Color - primary, secondary
   d. Condition - old, new shiney
   e. Composition - wood, plastic, metal, knitted, cloth, etc.
   f. Major parts
   g. Function - what is it used for?
2. Touch - shape, texture, temperature, and weight
   a. Texture -

hard	rough	dry	scratchy
soft	smooth	gritty	prickly
pliable	waxy	rubbery	slippery
furry	mucky	glassy	mushy
rigid	sticky	slick sandy	
wet	gooey		

3. Taste - texture - sweet, sour (cooked, uncooked) delicious, crisp, tart, spicy, greasy, gooey, bitter.
4. Smell - pleasant, unpleasant, odor, smell, spicy, sweet, pungent, strong, mild, scent.
5. Hear - what sound does it make? rattle, pop, screech, buzz, loud, soft, sharp, quiet, shrill, clap, bump, hiss, clear, low, sigh, muffled, ring.
6. Emotion and Feelings -

afraid	pleased	selfish
proud	hopeful	haughty
anxious	happy	peaceful
troubled	sad	poor
grateful	angry	annoyed
ashamed	confident	good
lonesome	wicked	joyful
faithful	wanted	upset
loved	tearful	bad
bashful		

Positional Concepts

Positional concepts that relate to other concepts.

Positional Concepts

in	over	slanted	slanting	out
on top	diagonal	through	beneath	next to
beside	high	away	there	low
between	under	left	on	right
around	north	behind	south	below
east	above	west	far	top
near	middle	close	before	flat
after	upright	between		

Opposites and Contrasting Conditions

same-different	short-long
left-right	over-under
hot-cold	rough-smooth
right-wrong	wide-narrow
stop-go	clean-dirty
soft-hard	fine-coarse
light-heavy	old-young

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light-dark
wet-dry
big-small
night-day
big-little
on-off

in-out
up-down
behind-ahead
high-low
loud-quiet

Quantification Experiences
Part-whole relationships
Number
Weight and Mass
Volume
Length - Width - Breadth
Sequence
Value
more than
less than
same as

Comparison Experiences
big-bigger-biggest
tall-taller-tallest
little-less-least
more-most
noise-noisier-nosiest
soft-softer-softest
loud-louder-loudest

Time Experiences
1. Words that express time concepts

time	hands	lunchtime
clock	day	numbers
o'clock	seconds	noon
minutes	morning	afternoon
hours	evening	early
face	night	late

2. Days of week
Months — specific time names — daily, weekend, week,
Seasons — today, first, second, etc.
3. Special Days and Holidays
birthday
weekend
4. Past - yesterday
5. Present - today
6. Future - tomorrow, next

Motion Experiences - How do things move
Marching, running, walking, hopping, - "ed", and "ing" tell whether its happening or has happened.
"ly" action words - slowly, quickly, smoothly, quietly, gracefully, jerkily, lazily.

Associational Experiences - (Related Concepts)
Can you think of any other related ideas to _____?
ex: concept: apples — introduce the book Johnny Appleseed
letters — introduce concept of the mailman

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RELEVANCY OF SEMANTIC DEVELOPMENT OUTCOMES

Psycholinguistics has had little to say about how the child can be taught the enormous variety of meanings that he needs in order to understand literature. We know, however, that words can be thought of as names of concepts; the study of the development of vocabulary is then the study of the formation and naming of concepts. Language development and concept formation go hand in hand. Using symbols of objects and events, and grasping relations between objects and events which involves more complex cognitive operations of grouping, ordering, spatial and temporal reasoning are essential for cognitive development.

Semantics refers to the labels given objects or events. These labies are decided by the language community and are accepted by convention so the community can communicate.

Closer study of the development of understanding and communication in childhood has led to the conclusion that realy communication requires meaning, i.e., generalization as much as signs. The child's world of experience must be greatly simplified and generalized before it can be translated into symbols. Only in this way does communication become possible, for the individual's experience resides only in his own consciousness and is, strictly speaking, not communicable. To become communicable it must be included in a certain category that society regards as a unit.

Communication presupposes a generalizing attitude resulting from which is an advanced stage in the development of word meanings. The higher forms of human intercourse are possible only because man's thought reflects conceptualized actuality. That is why certain thoughst cannot be communicated to children even if they are familiar with the necessary words. The adequately generalized concept that alone ensures full understanding may still be lacking.

Children often have difficulty in learning a new word not because of its sound but because of the concept to which the word refers. There is a word available nearly always when the concept has matured.

The development of word meaning as a unit of both generalizing thought and social interchange is of incalcuable value for the study of thought and language. It permits true casual-genetic analysis, systematic study of the relations between the growth of the child's thinking ability and his social development (Vygotsky, 1967).

According to Piaget, concept development is dependent upon verbal schemas. The first stage in concept developmentis preconcepts. Preconcepts are formed when the child does clearly understand either that members of a class differ from one another, or that they are alike in their membership in the class. Genuine concepts are formed when a child understands what a noun signifies (a label for a class of objects or actions). Piaget suggested that to classify objects into groups there must be a mental process; each category as a defining characteristic that determines whether an object is put into that category. Furthermore, each set of objects must be considered as a number of distinct individual objects with a common feature that defines the class.

A class then is a set of objects or events that has certain characteristics in common. The common characteristics define the class, and often some label in the language designates the class. Woodruff (1967) suggested that ideas about concrete or real things must be taken in through the perceptual organs of objects and results from looking at specific objects or events. These are Woodruff's structural concepts - concepts of an object relationship or structure of some kind. It is these concepts that are developed in the preoperational stage.

Bruner (1964) distinguished three systems of processing information by which individuals construct models of their world:

The first phase is enactive action, a mode of representing past events through appropriate motor response. Piaget referred to this as sensorimotor interaction with the environment, while Woodruff called it sensory intake.

Piaget (1962) and Bruner (1964) indicated that abstract relations appear to be grounded in enactive, sensory experience which is progressively organied into hier-

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archically more symbolic levels. This was found to be evident in the study results of Shipman and Hess (1965).

In a study with disadvantaged four year olds it was found that the ability of verbal expression oneself verbally is the common requisite for successful performance on measurements in which the disadvantaged children showed the greater deficit. It was found that when learning activities were structured to physically engage the child while concurrent, meaningful verbalizations were elicited, verbal expressive abilities dramatically improved (Karnes, 1968).

Contrary to traditional nursery school philosophy, Brittain (1969) found that preschool children actually enjoyed discussing their art work as they were in process. He also found that the children worked longer on a piece of creative work and the work was developmentally on a higher level when an adult encouraged verbalization from the child while he was working. Combining verbalization with a physical activity enables the child to clarify specific word meanings. This notion is further supported by Razran (19) who found that the children who demonstrated the most significant understanding of a concept were those who were shown the object and then given 20 sentences about the object when compared to 2 other groups - one receiving the object and one sentence, the other receiving 20 of the objects and one sentence. Ausubel (1964) wrote of the desirability of a wide range of objects which can serve as referents for speech.

The second phase is iconic imager, a representation that summarizes events by the selective organization of percepts and of images, by the spatial, temporal, and qualitative structures of the perceptual field and their transformed images. Piaget would refer to this as mental images.

The third phase is a symbolic system which represents things by design features that include remoteness and arbitrariness. A word neither points directly to its referent, nor resembles it as a picture. Piaget referred to verbal schemas or representation at this stage.

Woodruff, Bruner and Piaget generally agree about the sequence of concept development. The learning theory principles of Piaget, Bruner and Woodruff suggest that an experience centered curriculum is a necessity.

According to the cognitive cycle of the learning theorists, the subject matter for any concept automatically becomes the objects, events, and consequences that are taken in through the sensory organs. This perceptual process is the beginning of concept formation (Woodruff, 1967).

Bruner (1966) found that school learning successes and failures cannot be explained completely on the basis of "intrinsic learning," a concept akin to Piaget's pleasure in cognitive functioning. He suggested powerful and intractable linkages between emotions, concepts and ideas which mold both the level and the nature of cognitive functioning. He found that a different form of cognitive organization takes place in an environment which places high importance on external regards and punishment keys primitive needs active and which meets steps at mastery with negative responses and an environment in which function pleasure and interest are learning guides.

Woodruff (1967) suggested that knowledge is about the "real world". The real world consists of objects which are engaged in events with consequences that impinge upon the self and affect its sense of well being.

The five elements that constitute the significant aspects of the environment as far as learning is concerned are:

1. objects that are around an individual;
2. the events in which the objects take part;
3. the consequences of those events;
4. the ways they impinge upon him; and
5. the way he feels about them.

These five kinds of concepts are the ones that will be forming in the mind of the individual.

Woodruff further suggested that verbal and symbolic knowledge is used in our pub-

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lic schools today. Concepts cannot be formed without first having concrete images. Young children must perceive real things first, then make their own concepts. This is conceptual knowledge - the input of real things and their transformation into conceptual structures. Therefore, real things must come in thorough perceptual senses, not through language. Language is only a form of expressing one's knowledge. It can function as a stimulating and suggestive influence on a learner as he forms his concepts, but not as a substitute for perception.

Piaget (1950) found that babies between the ages of 12 and 24 months when presented with concrete objects that repeated more than one form tended to group these objects on the basis of like forms in the course of their spontaneous play.

Concepts develop slowly during the sensorimotor period when the child is discovering classes, accumulating positive instances, and rejecting negative ones. Piaget emphasized the primitive quality of early concepts when he discussed "object concepts." Such nonverbalized concepts valuable to a child in directing his own activity, are of limited use because they cannot be communicated. A concept to be communicable must be represented by a symbol that is understood by others to carry the same meaning that the child intends. This symbol is usually a word. Symbols are aids to thinking that enable the individual to reflect upon objects or situations which are not actually present.

While children often make up their own words as symbols for their concepts, it is obvious that for concepts to be educationally adequate someone must apply the proper word as he needs it. Concept formation and language development are mutually interdependent processes, for virtually every word other than proper nouns represents a concept. Words also help in conceptualizing experiences. The "what's that" stage of language development signals a particularly active stage of early concept discovery. In discussing "intuitive" thought, however, Piaget emphasized that not before about age seven are concepts sufficiently firm and interrelated to permit logical reasoning in concrete situations.

As a child's fund of concepts learned from direct experiences increases, he can begin to develop and extend concepts from vicarious experiences, especially from stories, pictures and direct conversation. Television has considerable potential in this respect. Children may also pick out familiar words that they hear in various situations and inquire about their meaning. When concept learning starts with the term and preceeds with definition and illustrations it is learned inductively, more in the fashion of many later concepts met in school. The skill of teaching a concept in this fashion is in utilizing the child's concepts that are already well formed for him. Then help him construct mental images of representative members of the new class or concept.

During the first part of the preoperation stage, the adult should ask inquiry questions of the who, what, when and where questions of the child. It is not until the child reaches the intuitive stage (approximately age 4-7) that it is appropriate to ask the child <u>how</u> and <u>why</u> questions. Piaget found that it is at this time that "why" questions become meaningful to the child.

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MEASURING CONCEPT DEVELOPMENT

Children's semantic abilities, hence concepts may be assessed in three ways. To begin with the learning facilitator must discover what concepts the child has and what are their content and qualities. By being cognizant of the semantic knowledge of those concepts children should know by approximately age seven the learning facilitator can begin to study the evidence of conceptual development by observing the child's physical and verbal behaviors. A longitudinal checklist should be kept for each child to note the emergence of new concepts, attainment of concepts and higher hierarchical conceptual understanding.

To assess the effectiveness of multi-sensory learning systems to teach specific concepts a basic concept attainment instrument can be used. Concept measurement involves making a common response to a class of stimuli. A concept is understood when the learner can identify any member of the class as belonging to the class. Classification is not complete without the generalization that all members of this set meet the test of specific criterion. Woodruff (1967) suggested once an individual understands a concrete concept he starts to associate and combine them and mold them into different kinds of abstractions, generalizations and principles.

The public test of the formation of a concept is the ability to respond correctly and reliably to new positive and negative instances of it; it is not implied, however, that a concept has not been learned because it cannot be berbalized (Carroll, 1964).

Bruner (19) distinguishes the difference between concept formation and concept attainment. In the formation stage the child has the ability to interact with categories but can't define their characteristics. He can discriminate, but can't tell you why, while concept attainment involves verbal specification of characteristics of a category. The child can communicate and define attributes that distinguish exemplars from nonexemplars.

David Elkind (1968), in a discussion of Piaget, established that every concept has two different kinds of content:

1. There is the realm of objects that the concept points to or denotes, which constitutes its extensive content. This is the kind of content with which the discriminative response version of a concept is concerned. The content of a concept includes all the exemplars of the concept (tree) that the individual can correctly classify. Traditionally, we tend to sample the extensive content by presenting the child with exemplars that vary rather widely among themselves, for example by presenting him with a palm tree or evergreen.
2. The other kind of concept content corresponds to the common feature of features connotated by all the exemplars and constitutes the concept's intensive content.

This is the kind of content assessed by verbal definition procedures. The intensive content of a subject's concept is arrived at when the child asked to tell what "vesper" means or the way in which an "apple and a pear are alike or the same." By comparing the child's answers with those given by a representative normative group one can tell the extent the subject has acquired the commonly accepted intension of the concept.

There is little coordination between the extensive content of a concept as revealed by discriminative responses and the intensive content of the same concept as revealed by verbal definition.

Following are some examples of measures for multi-sensory learning systems.

Once the child seems to have mastered basic understanding of the concept the learning facilitator should continue to assess the further development of that concept.

Completeness of the conceptual knowledge can be assessed. This is done by use of the following categories:

1. Consistency - does the child maintain the same response as stimulus is varied?
2. Accuracy - does the child give partial responses?

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3. Clarity - does the child give clear and acceptable examples?
4. Fullness - does the child give several aspects or details? Can he see opposites?
5. Extensiveness - does the child give many different kinds of illustrations?
6. Applications - does the child use the semantic concept correctly when speaking?

The measurement of concepts cannot be confined to simple overall measure or scores, such as those from intelligence and achievement tests, because concepts are not considered to be functions of ability. "It cannot be assumed that if the child lacks the concept, it is because he is unable to learn it or that his failure to learn after he has been 'taught' is purely a matter of ability." Johnny does not do well in arithmetic not because he does not work enough, but because he has not built the previous intellectual structures required to master that particular arithmetic concept. Therefore, measure needs to be designed in reference to the individual child's understanding of the subject matter.

Another way of children's concepts can be measured as an estimate of the maturity of thought is looking at the nammer in which children define words. Younger children usually think in terms of function and description, illustration and demonstration; whereas older children more often use synonyms and explanation types of responses. Children seem to shift gradually from the use of concrete ideas and emphasis on isolated aspects to an emphasis upon class features. Darrow (1964) suggests the following analysis chart may be used to measure conceptual understanding in this way (see chart on following page).

Measuring conceptual attainment in terms of maturity of intellectual thinking enables the learning facilitator to add scope and sequence to the multi-sensory learning systems. "Instruction that enables children to think about such materials at higher stages requires that the teacher listen closely to the child and begin at the level that matches the child's already developed structure. It requires that movement be sequential, not haphazard, and that demonstration, discussion, and group interaction be the meaningful activities for children. When the teacher has some understanding of the child's level of functioning, materials can be organized at that level and developed to move toward the next stage." (Gordon, 1966).

Perhaps the best standardized test of vocabulary is the Stanford Binet. For developmental assessment the following sequence is suggested:

Cattell Infant Intelligence Scale
Stanford Binet picture vocabulary subtest
Stanford Binet definitions subtest

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CONCEPT DEVELOPMENT MEASUREMENT

Concepts

	Red	Hat	Instrument	Wood	Book
I. Nonverbal identification based on receptive language abilities Directions: Examiner circles correct symbol of subject's response. R-right W-wrong. Examiner says "Point to something that is (a, an).	RW	RW	RW	RW	RW
II. Verbal identification based on expressive language abilities. Directions: Write the word the subject gives. Examiner says: What color is this? What is this? (For hat, instrument, and book). What is this made of? (for wood).					
III. Classification ability with the objective established. Directions: If subject puts all red objects together circle "All"; if he can classify none circle "None"; and if he can classify some but not all indicate "How many." Examiner says: 1. Put all the red things together. 2. Put all the hats together. 3. Put all the things that are made of wood together. 4. Put all the instruments together. 5. Put all the books together.	ALL None How many	ALL None How many	ALL None How many	ALL None How many	ALL None How many

Child's Name
Date
Examiner

Scoring:
Red
Hat
Instrument
Wood
Book

Receptive Expressive Classification Concept Total Score

Language Mode
Total Score

Receptive Expressive Classification

Other Semantic Measures

1. Peabody Picture Vocabulary Test
   Dunn, 1959, Vocabulary, comprehension of words

2. Preschool Language Scale
   Zimmerman and others, 1969

3. Boehm Concept Test

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STEP II: CONDITIONS FOR LEARNING SEMANTICS

Learner Characteristics

Situational Variables

Content Variables

Learning Strategies

Directive

Developmental

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Learner Characteristic Relating to Concept Development

1. Conditions of sense organs. Children tend to differ in efficiency of sensory apparatus, so no two children experience primary data of the same environment the same say (Hurlock, 19).
   Extreme examples: blind child
   deaf child
2. Intelligence. High intelligence, especially in the areas of memory and reasoning, increase child's ability to develop concepts. (See concept development in mentally retarded children, (C. Mueller, 1973)).
3. Attitude. The value a child places on a concept indicates his feeling for it and influences his behavior (Woodruff). Values are concepts heavily weighted with emotions, (Hurlock). Research findings indicate that intelligence plays a less crucial role in the affective element of concepts than in cognitive element; e.g., dislike of some object by a child may be a result of prior experiences with an object rather than the child's knowledge of it. Clinical evidence indicates that, on the whole a well adjusted child tends to have more accurate, more realistic, and less emotionally weighted concepts than a poorly adjusted child.
4. Previous experiences. Research investigators indicate that the correlation between concept development and experience is greater than between concept development and intelligence.
5. Age. The older the child is, the more learning opportunities he should have had leading to concept development.
6. Social class differences. Research indicates that a child's concepts, their accuracy, their variety, and their number and the like are to a large extent determined by social economic group affiliation or rural/urban environment. Early concepts are based on concrete experiences.
7. Sex differences. Research findings indicate that girls and boys, due to differential cultural conditioning, attach different meanings to experiences and objects; e.g., clothing.
8. Language. Necessary process for concept formation.

Situational Variables Relating to Concept Development

Verbal interaction with adult - Research and clinical evidence supports idea that a child is helped to develop abstract concepts by repeated experiences with objects, people, and situations especially if verbal interaction takes place. Amount of is the situational variable.

Details of environment - Encouragement of adults to observe details in environment help children to develop conceptual thinking.

Content Variables for Concept Development

The content carried by the instructional strategies will be selected from the concepts identified as learner outcomes. For example, color concepts, shape concepts, etc. The content can be taught by one, several or both of the identified instructional strategies. See developmental learner outcomes for listing of concepts.

Types of related media identified in the multi-sensory cognition systems are the content.

Instructional Strategies

Concepts can be taught both developmentally and directively. In the developmental process encoding techniques of questioning and statements and corrective feedback techniques of verbal reinforcement, extension of syntax, elaboration and extension of thought are used. These techniques are used according to child's interest and responses and are most appropriate when the child learns concepts ac-

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cording to Piaget, Bruner and Woodruff. According to others (Berieter and Englemann, 19) concepts can also be taught using a directive strategy. In this situation the learning facilitator decides the concept to learn provides a model statement regarding the concept, requests the child to repeat the statement and then reinforces him accordingly.

Directive strategies for teaching concepts.

Semantic Outcome: To introduce concept of maybe and or.
Content: Blocks of various colors.
Strategy: Directive

Have blocks of various colors displayed before the children. Tell them that you are going to take the yellow block and the red block and put them behind a screen so that they cannot see. Then tell them that you are going to touch the red block or the yellow block. Put your finger on one of the blocks and ask "Am I touching the green block?" They should answer no. Respond, "That is right. I said I would touch the red or yellow block." Then ask if you are touching the yellow block. If they answer yes or no take this opportunity to point out that they can't see so they really do not know; that they cannot really answer yes or no but could say maybe. Ask the same question about the red block and reinforce the use of maybe. Remove the screen and show the children which block you are touching. Explain that they can answer yes or no because they can see and know the answer. Continue this exercise with different colors until you feel that the children understand the concepts being taught.

Semantic Outcome: To recognize name and consciousness of self being "special".
To develop body awareness by walking and seeing self in mirror.
Content: Mirror, name tags around mirror with stock tac.
Strategy: Directive

Teacher asks children to listen to the teacher clapping. "Look what your hands can do. Look at everyone's hands. Let's walk around to the beat of our clapping."

Children and teacher walk and clap. They walk past mirror. TEACHER QUESTIONS KNOWLEDGE OF VOCABULARY WORK MIRROR. Children stand in circle and keep clapping and marching in place. Each child has a turn to come to the mirror and clap.

In a circle, teacher gives directions and describes the action as the children imitate. Clap, walk, swing arms, shake arms, touch toes, stamp feet. Teacher should give directions such as "We are clapping. What are we doing? Right, say it with me. We are clapping." (If teacher uses imperative form - "clap" - she can't then ask the child to repeat the same form.)

Ask if anyone would like another turn at the mirror. If children agree, the teacher looks to see if that child's magic ticket says Tommy. Tommy, would like to come to the mirror and do a trick. Encourage child to respond verbally, "Yes, I would."

Semantic Outcome: To expand the concept of the body
Content: Disassembled manikin from Peabody Language Kit
Stragety: Directive

Teacher should review the concept that all people have body parts. This concept should be expanded by stating that, our body parts help us do many things. The instructor should then reassemble the figure by passing out or spreading out on the table the parts of the figure. Again, start with the head and allow individual children to take turns in helping put the parts of the figure together. The sentence patterns, "This body part is the _____. We _____ with our _____", should be used with each student until all parts have been assembled.

Teacher: "Now I am going to see how well you remember what we have talked about. I will say the name of a body part and I want you to tell me as many different things as you can that we do with this body part."

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Teacher should say the following body parts and should encourage the children to respond.

eyes - see, look
ears - hear, listen
nose - breath, smell
arms - lift, things
carry things
hands - pick up things
scratch, write, eat, clap
mouth - eat, talk, sing, taste
legs - walk, jump, run, kick, hop

Semantic Outcome: To stimulate observation of differences and expression of such by comparison of the bodies of various creatures with the human body.

Content: Vocabulary including worm, bird, dog, spider, monkey, fish, human, skeleton, body covering, hair, skin, scales, feathers, head, neck, body, legs, fins, feet, wings, same, different, alike. Animal pictures of worms, birds, dogs, spiders, monkeys, human, fish.

Aspects to be considered:

1. skeleton - presence - absence
2. body covering
3. body parts- head-facial structures
neck
body
appendages - number? what are? function?
4. locomotion

Strategy: Directive

After discussing one aspect of consideration such as which animals have skeletons it should be pointed out that this is one way that these animals are alike.

Teacher: Can you tell me how a bird and dog are alike?

Child: (most probably response - both animals)

Teacher: Yes, they are both animals, but you could also say that they are alike because they both have skeletons.

Continue this process with various aspects discussed, bringing in alike - different concepts.

Developmental Approach to Concept Learning. There is more to concepts than words. A concept is a theoretical construct, an abstraction by the psychologist - it exists neither in imagery nor in words. A word is a package of concepts and so is an image.

There must be some way a perceptual input can communicate with the inner system of concepts.

Some packages of concepts have phonetic things attached to them which make them pronounceable. However, any attempt to reduce conceptual thinking to mere manipulation of words, necessarily leaves out many conceivable concepts. However, it is the word that enables the child to communicate and demonstrate the level of the child's conceptual development.

Since some concepts are never verbally defined in a person's repetoire, the best description would be what Bruner describes as a category. He portrays a category as a basket in which the individual puts those objects that belong together because of the attributes they share under a given system of classification. A category includes within it a range of discriminably different items which are treated as if they are the same (Bruner, 19560. For example, a mode of transportation which travels on water is generally considered to be a boat. A child splashes around in his bathtub and is given a blue, wooden boat to play with - something that floats. As mother hands it to him, she says, "Boat". Later, this child may take his blue, wooden boat to the lake and put it in a new environment. There he may see a red plastic thing with a white sail another child has, and his mother says, "See Tommy's boat." His uncle may take him out in a thing which somebody says is "Uncle's boat." He can sit in it and it goes through water very fast. The day that the child sees a boat-like object moving through the water and

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verbally labels it as a boat we can say at this point the child has the concept of what a boat is. The child, from his experience of floating objects figures out what these things have in common that cause them to have single name or the concept label, "boat".

Piaget also feels the child develops conceptual knowledge through sensory interaction with the environment. According to his developmental theory, the first stage in concept development is preconcepts. Preconcepts are formed when the child clearly understands either that members of a class differ from one another or that they are all alike in their membership in the class. Piaget (1950) found that babies between the ages of 12 and 24 months when presented with concrete objects that repeated more than one form tended to group these objects on the basis of like forms in the course of their spontaneous play. Sigel (1971) found differences in criteria as well as capabilities for classifications between lower and middle class children; lowerclass children seem to show high preferences for use of color or form and when they do group, rarely if ever use standard categorical labels, such as "These are animals" or "These are foods". It was concluded that lowerclass children seem to have greater difficulty in using any but more obvious descriptive characteristics as the basis for seeking classifications, suggesting they are operating in a preconcept stage.

Concepts develop slowly during the first two years of infancy when the child is discovering classes, accumulating positive instances, and rejecting negative ones. Piaget emphasized the primitive quality of preconcepts when he discussed "object concepts." Such nonverbalized concepts, valuable to a child in directing his own activity, are of limited use because they cannot be communicated. A concept to be communicable must be represented by a label that is understood by others to carry the same meaning that the child intends. Labels are aids to thinking that enable the individual to reflect upon objects or situations which are not actually present. While children often make up their own words as labels for their concepts, it is obvious that for concepts to be edu cationally adequate someone must supply the proper words as children need them, The "what's that" stage of language development signals a particularly active stage of early concept discovery.

Piaget suggests that for classification of objects into groups there is a mental process of defining characteristics that determine whether an object is put into a particular category. When a child understands what a noun signifies (a label for a class of objects or actions), he has moved from the preconcept stage to the formation of genuine concepts. Each set of labeled concepts must be considered as a number of distinct individual objects with a common feature that defines the class.

Various research studies have pointed to the importance of language intervention while the child is interacting with his environment. In a study with disadvantaged four year olds, it was found that the ability to express oneself verbally is the common requisite for successful performance on measurements in which the disadvantaged child showed the greater deficiencies (Shipman & Hess, 1965). Karnes (1968) found that verbal expressive abilities dramatically improved when learning activities were structured to engage the child in physical involvement while concurrent, meaningful verbalizations were elicited. In an example that is contrary to traditional nursery school philosophy, Brittain (1969) found that preschool children actually enjoyed discussing their art work as they were in the creating process. He also found that the children worked longer on a piece of creative work and that the work was developmentally on a higher level when an adult encouraged verbalization from the child while he was working.

Combining verbalization with a physical activity enables the child to clarify specific word meanings. Learning theory and research suggest that concept formation can best be facilitated by multi-sensory learning experiences.

Multi-Sensory learning systems. Multi-sensory learning systems have been effective in teaching young children basic concepts. A system is defined as a compilation of open-ended, yet structured resource materials centering around a specific concept. The systems spiral in a developmental nature in that every child interacting with them can further knowledge of the concept intended or a child can develop his own concepts

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from the media since no two children experience the primary data of the environment in the same way. The role of the teacher is to give the child labels as he interacted with the media and to assist him in discovering like attributes of the objects. Media include organic objects, artifacts, children's literature, movies, films, filmstrips, slides, tapes, lighting, music, round objects, art reproductions, sculpture, toys, art media for creating purposes, and any other object which reinforces the learning of the concept.

Implied in a system is a feedback loop to ascertain if in fact a concept has been formed. The instrument in Table I was developed to measure the effectiveness of the multisensory learning systems. The particular instrument shown here was uses with a study with two year old children. Questions can be adapted to measure each of the specific concepts taught by various centers. The older children should also be asked to give negative examples of the concept, e.g., "Show me something that is not red", and to establish their own criteria for classifying objects.

Planning for instruction. Plans for teaching the concept may be perceived as a map by means of which children proceed to learn the prescribed tasks. Terminal objectives must first be decided upon. Then working backwards, the subordinate objectives and types of learning must be identified and ordered in a sequence determined by what kind of learning preceeds another.

For example, the final conceptual objectives of a multisensory learning system might be to determine the factors which influence the growth of plants. The question would be "What do plants need to make them grow?" A subordinate objective might be to determine "What effect does water have on the growth of plants?" The following types of learning can be used as a guide to develop plans for this subordinate objective.

Step 1. Identify the principle involved in solving the problem.
Step 2. Determine what concepts are involved in determining the principles and in carrying out the experiment - water, growth, corn, seeds, soil, and sand.
Step 3. Children will need to be able to discriminate among objects to select particular items within a class, such as to tell the seed from the plant, to pick out a corn seed from other seeds, to tell sand from soil, etc.
Step 4. Children should make verbal associations among things which have relationships such as corn, pea, bean, seed, etc.
Step 5. The learners must be able to carry out the actions in the experiments in some sequential series of steps.
Step 6. These experiences can be carried out only if children can apply verbal labels for the things to be used, done, and observed.

All objectives and tasks should be precisely stated so that they can be clearly communicated to children and readily assessed. They often can begin with verbs such as "draw", "identify", "look for", "tell,", etc.

All children may not need to start with the simplest type of learning. Some children might begin most profitably at the level of learning the steps of planting and watering. To make these determinations informal evaluations can be made by means of observation and discussion.

Alternate tasks should be available for children who choose not to participate in the one prescribed since some children may not be ready for the task in terms of their level of interest, physical maturation, or intellectual development.

Language and cognitive learning experiences should be integrated with sensorimotor, visual perception and motor tasks. The materials and equipment and how they will be used in the learning experiences should be included in the instructional plans. Since materials and equipment for free play are to be deliberately selected, notations of these should be in the plans.

How to develop your concept:

1. Research every source (films, filmstrips, books, literature and content fields, pictures, art reproductions, manipulative materials, photographs, artifacts, records, etc.)

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2. Choose media related to your concept or skill. Be sure to provide experiences for all areas of development.
3. Organize carefully (arranged aesthetically, quality not quantity); mount materials whenever possible, supply explanatory statements for older children, etc.
4. Measure achievement. (Nonverbal identification measures, verbal identification measures, classification measures, etc.).

Following is an example of a multi-sensory learning system designed by Elaine Barker of the UVa staff.

I. CONCEPTUAL UNDERSTANDINGS OF SHAPES (square, triangle, square, sphere)
1. Categorization
a. function - discrimination of shapes throughout the environment; detecting shapes in pictures; spacial relationships which are essential skills for learning letters and how to put them together to form words.
b. color - varies
c. composition - solid form or lines enclosing geometric space
d. number - four shapes (square, rectangle, circle, and triangle) with possibility of learning diamond, semi-circle, polygon, pentagon, hexagon, octogon (cross), decagon (star), trapezoid, and ellipse for children who already know basic shapes.
e. major parts - sides, corners, angles, and curves
f. five senses:
1. taste - snack of round and square cheeze on geometrically shaped crackers (Sociables); cut cheese into various shapes
2. smell - not applicable
3. touch - identify forms through tactile discrimination with no visual cues (grab bag)
4. sight - recognize shapes when presented visually
5. hearing - when told the name of a shape, can connect with the visual form.
g. size - small, medium, and large
h. shape - square, rectanglar, traingular, circular (move to additional shapes when indicated mastery of these)
i. associations - everyday objects: books, school supplies, toys, plants, trees, houses, furniture, safety signs (stop, yield, railroad crossing, etc.). human bodies
2. Motivation - through art activities, games, finger play, and song
II. AREAS OF DEVELOPMENT
A. Motor
1. Gross - make shapes with body or parts of body; position body according to outlines of shapes on floor; carve pumbpkin
2. Fine - collage with paper plates and geometric shapes cut from construction paper
collage with paper plates, wallpaper, or styrofoam containers and geometric shapes cut from materials.
pattern painting on newspaper with geometric shapes cut in potatoes
cutouts from clay dough with cookie cutters
drip pain in construction paper cut into geometric shapes
grab bag
draw in sand
construct geometric shapes out of telephone wiring or pipe cleaners.
3. Visual Perceptual - shape lotto
shape bingo
shape puzzle
Shape-O

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Attribute Games
flannel board with shapes
shapes projected on wall
familiar objects to play with

B. Language
1. Phonetic - plurals through discussion of sides, curves, lines, corners, and angles
2. Semantics - learn what geometric names mean and properties of the shapes (triangle has three sides)
3. Syntax - subject and verb agreement (A square has four sides that are the same size. Triangles have three sides.)
use of prepositions through body position game ("Stand inside the circle?" "Sit beside the square". "Stand between the triangle and the rectangle.")
4. Auditory discrimination - Sesame Street record on shapes
5. Reading - learning to discriminate shapes is ultimately essential in learning to make letters which are basic to the ability to read

C. Cognitive - sharpens ability to discriminate details of objects found in everyday experiences, thus perfecting ability to deal with detail in reading, writing, eye-hand coordination, drawing and mathematics.

D. Social
1. Self Concept - make masks or hats from geometric shapes
2. Self Help Skills - learns to work alone in art activities, use creative abilities; explore with objects in common object corner; discover when searching for geometric shape.

III. ACTIVITIES

Making Shapes with Body:
1. Learner outcome - to begin to get a feel for shape and develop gross motor coordination
2. Conditions
a. learner characteristics - five 4-year old children (three boys and two girls); two from lower class families, one of them with a language deficiency and/or extreme shyness and lack of confidence, therefore talking very little; two children somewhat hyperactive, therefore having bad attending abilities frequently.
b. situational variables - small room where rest of activities set up
c. strategy - game
d. content - use four or five 36 inch lengths of heavy string or yarn (all the same color) and make representations of geometric shapes on the floor; then the children place themselves in relation to shapes as directed by the learning facilitator ("Stand <u>beside</u> the circle." "Step <u>outside</u> the square." "Skip <u>around</u> the rectangle." "Stand <u>on</u> a corner of the traingle.")
3. Resource - <u>The New Nursery School</u>, Learning Activities Booklet V, p. 22.

Carve Pumpkin
1. Learner outcome - to be able to use some of geometric shapes in design of pumpkin's face and identify shapes
2. Conditions
a. learner characteristics - same five children
b. situational variables - same room
c. group activity - strategy
d. content - with help of learning facilitator in cutting, children clean out pumpkin, pick designs to be used in face, and identify shapes used
3. Resource -

Construction Paper Collage
1. Learner outcome - to begin to distinguish differences in shapes while selecting them use in collage; eye-hand coordination and fine motor coordination

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2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - same room with table for children to work at
   c. strategy - art activity
   d. content - children use paper plates and choose circles, squares, traiangles, rectangles (and possibly diamonds and semi-circles) cut from red, yellow, blue, and green construction paper to compose collage and paste it on plate.

3. Resource -
Material Collage
1. Learner outcome - additional experiences with distinguishing shapes while selecting them for a collage; eye-hand coordination and fine motor coordination; experience in discriminating textures.

2. Conditions
   a. learner characteristics - same five children
   b. situational variables - table in same small room
   c. strategy - art activity
   d. content - children select shapes (circle, square, rectangle, triangle, diamond, semi-circle) from various materials (cotton, wool, acetate, felt, velvet) to paste on paper plates, wallpaper, or styrofoam container

3. Resource -
Newspaper Prints
1. Learner outcome - to cut geometric shapes out of potato and identify cutout

2. Conditions:
   a. learner characteristics - same five children
   b. situational viarables - table in same room
   c. strategy - art activity
   d. content - children cut geometric shape out of or into potato with help of learning facilitator if necessary, then dip shapes in various paint (red, yellow, blue, green) and make patterns on newspapers.

3. Resource -
Clay Dough Cutouts
1. Learner outcome - practice with geometric shapes; identifying shapes used; eye-hand and fine motor coordination; possibility of noticing shapes in the newspaper.

2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - table in same room
   c. strategy - art activity
   d. content - various colors of clay dough and various geometric shape cutters available from which children can select and start to make cutouts; identifying and describing shapes used.

3. Resource -
Drip Painting
1. Learner outcome - to distinguish the differences in various geometric shapes (number of sides, straight or curved lines, number of corners)

2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - table in same room
   c. strategy - painting, new sort
   d. content - children select geometric shape to paint on (large circles, traingles, squares, and rectangles cut from various colors of construction paper); fold in half and open; drip various colors of tempora paint on each side of the folded line; when finished, press together again and reopen to get pattern made from drippings of paint;

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allow to dry well before sending home or hanging; describe what sees in his finished pattern

3. Resource

Grab bag

1. Learner outcome - to be able to feel objects without seeing them and tell what shape they are

2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - corner of room; when children know shapes well, can play this without learning facilitator present to say whether shape discrimination is right or not
   c. strategy - game
   d. content - at first can put flat plastic shapes from the Attribute Game kit in Grab bag and have child put hand in bag, feel one shape, and identify it, then look at shape to see if identified correctly; as geometric discrimination ability improves, put common objects in grab bag and have child identify the shape of the object and what the object is (is possible); if more than one child playing, take turns

3. Resource

Sand Drawing

1. Learner outcome - to get the feel of a geometric shape and how it is drawn, leading to fine motor coordination needed for writing letters

2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - in sandbox outdoors, if possible; if not, can bring boxes of sand into classroom
   c. strategy - play activity
   d. content - have child draw geometric figures he has learned in sand, first with a stick and then his finger, describing characteristics of shapes as he draws them

3. Resource

Wire Shapes

1. Learner outcome - to be able to construct at least four geometric shapes; fine motor coordination

2. Conditions:
   a. learning characteristics - same five children
   b. situational variables - at table in same room
   c. strategy - art activity
   d. content - use telephone wire (fine) or pipe cleaners for children to make geometric shapes from

3. Resource

(As children participate in any of these activities, the learning facilitator will interact with them, getting them to describe what they are doing, discuss the characteristics of the shape or shapes, and helping them to learn the characteristics of the shapes. Since the children are at various levels in discriminating shapes, they could begin at various points in these activities. The activities for which I have lilsted nothing for resource, I have gotten from various day care centers and schools and activities I participated in as I came through school and while I taught.

Visual Perceptual

Shape Lotto

1. Learner outcome - to discriminate the differences between six shapes (circle, semi-circle, square, rectangle, diamong, and triangle).

2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - same room
   c. strategy - game

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d. content - lotto board with nine spaces (4x4 inch approximately) with six shapes placed randomly; first let child play with and match shapes; then can use as game with facilitator calling out shapes

3. Resource
Shape Bingo

1. Learner outcome - for child to be able to discriminate the differences between circle, semi-circle, square, rectangle, traingle, and diamond

2. Conditions
   a. learner characteristics - same five children
   b. situational variables - same room
   c. strategy - game
   d. content - played like BINGO, except have shapes under each letter; facilitator calling out shapes (this will probably be too difficult for these five children at this point)

3. Resource
Shape Puzzle

1. Learner outcome - to discriminate shape and be able to fit into puzzle (square, triangle, circle, rectangle, and semi-circle); eye-hand and fine motor coordination

2. Conditions:
   a. learner characteristics - same five children
   b. situational variables - same room
   c. strategy - individual game
   d. content - child manipulates puzzle pieces at own rate with help from facilitator if requested

3. Resource - UVa Special Education Library
Shape-O

1. Learner outcome - to be able to perceive shapes and manipulate into holes in Shape-O; eye-hand and fine motor coordination.

2. Conditions:
   a. learner characteristics - same children
   b. situational variables - same room
   c. strategy - individual game
   d. content - child fits three-dimensional shapes into shaped holes in a red and blue plastic ball; opportunity for interaction with facilitator as hunts for correct openings and learns names (if ready of shapes which range from a circle to a star (1 to 10 sides)

3. Resource - UVA Special Education Library
Attribute Games

1. Learner outcome - to explore shapes and learn to discriminate the differences between them (circle, squares, rectangles, and triangles, hexagons in two different sizes each).

2. Conditions:
   a. learner characteristics - same children
   b. situational variables - same room
   c. strategy - individual activity
   d. content - child left to explore and sort with the various shapes as he desires; he can fit them into their compartments in the tray; there are six of each shape in varying thicknesses and colors, so that child gets several sensory experiences at once; facilitator will not guide sorting, but interact with child getting explanations of what he is doing

3. Resource - UVA Special Education Library
Flannel Board with Shapes

1. Learner outcome - to discriminate the differences between four basic shapes (circle, square, traingle, and rectangle) and pick out which one missing from a sequence; and describe its characteristics set up own sequence of shapes & create pictures with shapes.

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2. Conditions:
   a. learner characteristics - same children
   b. situational variables - same room
   c. strategy - game for one or more children
   d. content - felt geometric shapes placed on flannel board in various sequences with one missing; leave one shape out of sequence and ask what shape is missing; get child to describe attributes of shape; one child can set up sequences for another; child can simply explore with putting various shapes on the board; according to abilities of children can also have shapes in varying colors and sizes; can also have sequence of shapes with one not the same as the others and have child remove the one that doesn't belong, telling why it doesn't belong

3. Resource - adapted from the New Nursery School, Activities Booklet V, p. 23.

Projected Shapes

1. Learner outcome - recognize geometric shape that common object has when projected on the wall and name the shape; make connection between objects and their shadows

2. Conditions
   a. learner characteristics - same children
   b. situational variables - same room or outside in play area if no overhead projector is available
   c. strategy - type of game
   d. content - take ordinary objects which will have geometric shape when projected on screen or wall, project them, and have children identify the shape; if no overhead is available, this activity can be conducted outside when there is good sunlight with the children identifying the shadow that is thrown on the ground; also can be conducted by holding up side of object to children having them identify the geometric shape they see; as children become adept at identifying shapes, use objects which present shapes in a less obvious manner.

3. Resource - adapted from The New Nursery School, Activities Booklet IV, p. 26.

Play Corner

1. Learner outcome - child becomes familiar with the various geometric shapes and their presence in ordinary objects

2. Conditions:
   a. learner characteristics - same children
   b. situational variables - will probably not be able to set this up at Janie Porter Barrett
   c. strategy - free play
   d. content - have a corner or section of the room where many common objects are located which contain the geometric shapes being used in the center (objects like balls, dishes, books, musical instruments, pillows, records and covers, pictures, etc.); child free to play with any of the objects with facilitator interacting verbally with him when possible

ADDITIONAL RESOURCES

Books

Crews, D., We Read: A to Z, Harper & Row, New York, 1967.
Emberley, E., Drawing Book of Animals, Little, Brown and Col, Boston, 1970.
Epstein, S., & Epstein, B., Who Needs Holes?, Hawthron Books, Inc, New York, 1970.
Hoban, T., Look Again!, The Macmillan Co., New York, 1917.
Martin, J., Round and Square, Platt & Munk, New York, 1965.
Podendorf, I., Shapes Sides, Curves, and Corners, Children's Press, Chicago 1970.
Schlein, M., SHAPES, William Scott, Inc., New York, 1952.

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Nimnicht, G. et al., The New Nursery School, General Learning Press, New York, 1969.

Games

Attribute Games, TEACHING RESOURCES, Boston

Fit-A-Shape, ABC School Supply, $4.95

SHAPE-O, Tupperware Toys, Orlando, Florida

Song

"Make a Circle" (to tune of "Ten Little Indians"), The New Nursery School, Learning Activities Booklet IV, p. 16.

Make a circle with your fingers
Make a circle with your fingers
Make a circle with your fingers
There are many things that you can do.

Finger play

The New Nursery School, Learning Activities Booklet, VI, p. 33

I looked in the cookie jar, and what did I see? (Form circle with both hands)
A big round cookie Mother put there for me.
Mother looked in the cookie jar,
But she didn't see, (Shake head)
The big round cookie she put there for me. (Form circle again)

Many educational materials companies have good materials for teaching shapes - ABC School Supply, Beckley-Cardy, and Child Craft. Also, the Sesame Street book and record on shapes is supposed to be good and must be since it had been checked out in all libraries.

III. ACTIVITIES (cont'd.)

Gross Motor - Block Painting

1. Learner outcome - to begin to learn the outline of different shapes; build gross motor and eye-hand coordination; learn about mixing colors

2. Conditions
   a. learner characteristics - same five children
   b. situational variables - same room
   c. strategy - art activity
   d. content - have wooden pieces of varying sizes (perhaps available in scrap heap at lumber yard) that children can paint as they wish; chance for interaction about the characteristics of the shape.

Elaine Barker
Shape Concept Development Measure

Child's Name _____
Date _____

I. Nonverbal identification

1. Point to a circle.	R	W
2. Point to a square.	R	W
3. Point to a rectangle.	R	W
4. Point to a triangle.	R	W

II. Verbal identification (expressive language)

1. What is this (holding up square)?
2. " " " (" " triangle)?
3. " " " (" " square)?
4. " " " (" " traingle)?

(Examiner can repeat the same four questions holding up objects of these four shapes.)

III. Classification ability with the objective established

1. Put all the circles together	All	None	How many
2. " " " squares together.	All	None	How many
3. " " " triangles together.	All	None	How many
4. " " " rectangles together.	All	None	How many

Child's Name _____
Date _____
Examiner _____

Scoring:	Receptive	Expressive	Classification
Circle			
Square			
Triangle			
Rectangle			

Language Mode	Receptive	Expressive	Classification
Total Score	_____	_____	_____

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Additional Activities. Touch and taste are often neglected modes when developing concepts. Every effort should be made to use them in order to broaden the child's understanding.

Taste and smell discrimination are mostly developed through food experiences the child has had. For those children where the experience may be limited, there should be activities provided which give this experience. This can be done through games like a tasting or smelling party where children smell or taste all kinds of harmless things and attempt to identify them and discriminate between them.

Walks, trips, simple food preparation in the classroom can further experience and proficiency in these senses. It also develops vocabulary and helps the child to empathize with things he reads about.

Touch is used early by the child to explore his environment. The infant grasps at objects which immediately go in his mouth. Thus he learns texture - the smoothness, roughness, etc. Later as this sense is perfected, he learns shape and size.

Blind and deaf children must rely on this sense to learn to read. There are, however, others who are not blind and deaf who need the development of this sense in order to learn to read. There are a number of activities which can be used.

The following activities can be used to develop kinesthetic (touch) discrimination.

1. Feeling various shaped objects and playing games which help to identify them. This would include feeling squares, cones, cylinders, rectangles, circles, etc. and being able to identify them by feeling and with eyes closed.
2. Matching shapes to their equivalent ones.
3. Guess what it is?
   Have a box or bag with sandpaper, satin, fur, wood, cotton, etc. Allow the child, blindfolded, to see if he can tell what he has chosen out of the box.
4. Putting puzzles together (maps, story, etc.)
5. Who is it?
   Blindfold a child and allow him to run his fingers over the face and head of another to guess who it is.
6. Tracing, cutting, painting, clay modeling.
7. Follow the string. (tape can be used)
   With shoes off and blindfolded let the child try to follow the string or tape to the right spot. Games can be devised using this idea.
8. Feel the shape of letters, trace them, then try to make them without a pattern.
9. Feel a shape, flower, etc. and draw it.
10. Walking a beam, a rail, etc. without shoes and with eyes closed.

In helping a child to develop his power to think and interpret through the sense of touch, smell and taste, literature can be exciting and useful. It can help increase the child's ability to go from concrete experiences to abstract thinking and thus interpret the literature through the use of the sense of smell, taste and touch.

Some other activities which promote the use of taste and smell are:

Containers with spices for children to smell.

Perfume sprays and bottles for children to smell.

Soaps of various aromas for children to smell.

Visits to various shops, stores, etc. to appreciate the uniqueness of different shops.

Make sachets for Mother's Day using Spring flowers.

Make spice ball for closets out of orange and cloves.

Tasting party - Containers with salt, sugar, pickles, fruits, cookies.
Paper on which child circles correct tasted article.

NAME_____

Circle correct item:

1. Salt or sugar
2. Salt or sugar
3. Sweet or sour pickle
4. Sweet or sour pickle

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5. Apple or pineapple
6. Pineapple or apple

Cookies: Fill in using these words: lemon, orange, ginger, vanilla

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STEP III

Learning Facilitator Competencies

Study Questions

Selected Readings

Additional Readings

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COMPETENCIES NEEDED BY LEARNING FACILITATORS
TO DEVELOP CONCEPTS IN YOUNG CHILDREN

Cognitive competencies

The student will demonstrate knowledge of:

1. Jean Piaget's cognitive theory as it relates to concept development.
2. Jerome Bruner's cognitive theory as it relates to concept development.
3. Woodruff's model of concept development.
4. Major model early childhood curriculums based on the cognitivist learning theorists position - the New Nursery School, British Infant School.
5. Rationale behind the conditions of encoding (questioning strategies), verbal reinforcement, extension, elaboration, use of story books with children and multi-sensory learning systems for teaching concepts.
6. Knowledge of measurement of concept development.
7. Knowledge of media to stimulate concept learning in the early childhood setting.
8. Knowledge of research studies results on concept development.

Skill competencies -

1. The student will be able to implement effectively a multi-sensory learning system.
   a. The student will choose media and materials appropriate for the concept to be taught
   b. The student will be able to select media covering all discipline areas
   c. The student will be able to select media that will develop concepts in a hierarchical manner
   d. The student will prepare a written description of her center
2. The student will demonstrate appropriate use of questioning strategies designed to develop concepts.
3. The student will be able to develop and use appropriate concept assessments for the learner outcome.
4. The student will be able to use elaboration techniques to develop concepts.
5. The student will be able to use sequential questioning strategies with storybooks to develop concepts.
6. The student will be able to use verbal reinforcement techniques when appropriate to develop concepts.
7. The student will be able to use extension techniques when appropriate to develop concepts.
8. The student will be able to use the directive process to develop concepts.
9. The student will be able to appropriately administer a standardized vocabulary test to young children.

Schedule For Semantic Module

Day 1	Overview lecture
Day 2	Begin developing multisensory centers Read module overview and readings
Day 3	Discussion of semantic readings and ideas for centers. Students should bring what he has developed on paper thus far. 10 instructors for discussion. Staff will be available to assist in helping find media.
Day 4	Tape directive and developmental
Day 5	processes with semantic content
Day 6	in field centers and evaluate.
Day 7	Turn in written multisensory learning systems to instructor.

Study Questions: The student should be able to define the following terms:
Accomodation
Adaptation
Assimilation
Preoperational Stage
Sensorimotor State

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The student should be able to discuss the following questions:
What does Piaget mean by:

1. adaptation?
2. what is his concept of IQ?
3. what does he mean by stage dependent theory?
4. how do you think Piaget and Bruner differ? how are they alike?
5. what serves as internal or intrinsic motivation for Piaget?
6. If a concept continues to develop as one has more and more experience suggest a possible order of events in the growth of the concept of fiveness (not the written numberal).
7. An optional exercise: Think of a concept without a concept referent, like honesty or sympathy, and describe a series of experiences a person might have to develop the concept.

Suggested films to be viewed. These media may be viewed individual or with a group.

Children Learning by Experience

Source: Bureau of Teaching Materials
State Dept. of Education
Richmond, Virginia 23216

Learning by Doing

Learning begins in delight and with the exploration or investigation which concerns the children. The good elementary school promotes learning by organizing significant discovery for each child and by confirming and extending his experience.

30 minutes/Black and white
Purchase: $250.00
Rental: $30.00
Source: Time Life Films
43 West 16th Street
New York, N.Y. 10011

Slide-tape presentation

The intent of the slide tape presentation is to offer an explanation to the trainee of the theoretical bases of learning centers, their application in the classroom, their organization and composition, and the evaluation available. The trainee may use the presentation independently in a learning carrel situation or in small groups.

The miltimedia kit purports to explain how young children learn and how teachers can provide the conditions for such learning:

1. An accompanying cassette tape is provided. The script justifies concept learning according to several cognitivists.
2. The slides are used to demonstrate how to set up a learning center as well as to exemplify several "finished products."

Selected readings for semantic module -

Amster, H. Concept formation in children. Elementary English 11, May 1965, pp. 40-49.
Bruner, J.S. The growth of the mind. American Psychologist 1965, 20: 1007-1017.
Bruner, J.S. Some elements of discovery. In Shulman & Keislar (Eds.) Learning by Discovery, pp. 101-113.
Carroll, J.B. Words, meanings, and concepts. Harvard Educational Review 24, Spring 1964, pp. 172-202.
Goodnow, J.J. Effects of active handling, illustrated by uses for objects. Child Development, pp. 201-212.
Mann, M.E., and Taylor, A.P. The effects of multi-sensory learning systems on the concept formation of young children. Journal of Research and Development in Education, Spring, 1973, pp. 34-43.
Renzalli, J.S. The systematic selection of instructional materials based on an inventory of learning abilities and skills. Exceptional Children, April, 1970,

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pp. 615-619.
Siegel, I.E. The development of classificatory skills in young children: a training program. Young Children, January, 1971, pp. 170-184.
Stecher, M.B. Concept learning through movement improvisation: the teacher's roll as a catalyst. Young Children, January, 1970, pp. 143-153.
Stone, M.A. and Taylor, A.P. The nature and construction of cues. Unpublished paper. SWCEL. Albequerque, New Mexico, 1972.
Woodruff, A.D. The use of concepts in teaching and learning. Journal of Teacher Education, 15, March 1964, pp. 81-99.

Additional readings in semantics.
Handler, J.M. Pink is a good color ...? Childhood Education, November, 1969, pp. 76-78.
Jersild, C.L. Conceptual development. In Child Psychology.
Hurlock, E. Children's concepts. In Child Development, Fourth Edition (1964), McGraw-Hill Book Company, 1956.
Staats, A., & Staats. Concepts. In Learning, Language and Cognition, pp. 138-144.
_____. Concept formation. In Encyclopedia of Educational Research. Fourth Edition, 1969, pp. 196-205.
Caldwell, E.C. & Hall, V.C. The influence of concept training on letter discrimination. Child Development, pp. 63-71.
Darnell, C.D., & Bourne, L.E. Effects of age, verbal ability, and pretraining with component concepts on the performance of children in a bidimensional classification task. Journal of Educational Psychology, 1970, Vol. 61, No. 1, pp. 66-71.
Katz, P.A. Role of irrelevant cues in the formation of concepts by lower-class children. Journal of Educational Psychology, 1968, Vol. 59, No. 4, pp. 233-238.
Berlyne, D.E. Soviet research on intellectual processes in children. Monograph of the Society for Research in Child Development, 1963, 28, No. 2 (Whole No. 86).
Hanfmann, E., & Kasanin, J. A method for the study of concept formation. Journal of Psychology, 1937, 3, pp. 521-540.

Practical applications of theory and research.
Hunt, M., & Metcalf, L. How to teach a concept. In Teaching High School Social Studies, pp. 85-103.

Relationship of semantics and concept development.
Vygotsky, L.S. Thought and language. Edited and translated by Eugenia Haufmann and Gertrude Vakar, Cambridge, Mass.: The M.I.T. Press, 1962.
A pioneer study dealing with the role of language in the formation of concepts. A clear analysis is particularly relevant for teachers.
Glasser, Robert. Concept learning and concept teaching. Learning, Research and School Subjects. Edited by Robert M. Gange and William J. Gephart (Itasca, Ill., Peacock 1969).

Selecting appropriate media for concept attainment.
Weinthaler, J. The systematic selection of instructional materials based on an inventory of learning abilities and skills. Exceptional Children, April 1970, pp. 615-619.
McIntyre, R.B. Evaluation of instructional materials and programs: applications of a systems approach. Exceptional Children, November 1970, pp. 213-220.
Media format for multi-sensory learning systems.
McIntyre, M. Books which give mathematical concepts to young children: an annotated bibliography. Young Children. May 1969, pp. 287-291.

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REFERENCES

Ausubel, D.P. How reversible are cognitive and motivational effects of cultural deprivation? Implications for teaching the culturally deprived child. Urban Education, 1964, 1, 16-38.

Bereiter, Carl and Englemann, Siegfried. Teaching Disadvantaged Children In the Preschool. Englewood Cliffs. N.J. Prentice-Hall. Inc., 1966.

Brittain, W.L. Analysis of artistic behavior in young children. Paper presented at the meeting of Council for Exceptional Children, Denver, 1969.

Bruner, J.S. The course of cognitive growth. American Psychological Association Journal 1964.

Bruner, J.S. The growth of the mind. American Psychologist, 1965, 20.

Carroll, John B. Words, meanings, and concepts. Harvard Educational Review. 34 (1964), pp. 178-202.

Gordon, I.J. Studying the child in school. New York: John Wiley & Sons, Inc., 1966.

Hess, R.D. and Shipman, V.C., "Early Experience and the Socialization of Cognitive Modes in Children," Child Development. 1965, Vol. 36, No. 4, pp. 869-886.

Hurlock, E. Children's concepts. in Child Development. New York: McGraw-Hill Book Company. 1964.

Karnes, M.B., Hodgins, A., & Teska, J. An evaluation of two preschool programs for disadvantaged children: A traditional and a highly structured experimental preschool. Exceptional Children, 1968, 34, 667-676.

McAfee, Oralie, et al. "Learning Activities Booklets I-VI". The New Nursery School. New York: General Learning Corp., 1965.

Piaget, J. The language and thought of the child. New York: Harcourt Brace, 1926.

Piaget, J. The psychology of intelligence. London: Routledge and Kegan Paul Ltd., 1950.

Razran, G. The observable unconscious and the inferable conscious in current Soviet psychophysiology: Interceptive conditioning, semantic conditioning, and the orienting reflex. Psychological Review, 1961, 68, 81-117.

Siegl, I.E. The development of classificatory skills in young children: a training program. Young Children, January 1971, 170-184.

Vygotsky, L.S. Language and thought: the problem and the approach, in The Psychology of Language, Thought, and Instruction. Ed. John P. DeCecco, Holt, Rinehart and Winston, Inc. New York, 1967.

Woodruff, A. Concept formation and learning unit design. In J. Versuin (Ed), Conceptual models in teacher education. Washington, D.C.: American Association of Colleges for Teacher Education, 1967. 102-115.

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